Architecture of Grammar, day 5
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Recap

- 'movement' relates multiple independent, semantically compatible DPs
- derivational view of 'movement' reliant on the Y-model creating identical copies / plain multidominance not tenable
- sketch of a model starting with planar LFs

Earlier argument for semantically contentful traces (Sauerland 2004):

(2) a.*Polly visited every town that is near the lake Erik did Δ. (Δ = visit t)
    b. Polly visited every town that is near the one Erik did Δ. (Δ = visit t)

Effability & Economy

Can any conceptual representation that can be articulated in one language also articulated in another if the basic concepts are expressible in both languages?

Counterexample:

(1) a. Der wievielte Tag des Monats ist heute? (German)
the how-many-th Tag des Monats is today

b. *The how manyth day of the month is (it) today?

c. Which day of the month is today?

But semantic and syntactic conditions exhibit more flexibility.

cases: Scope and Binding Economy

Wide scope blocked first, then becomes available:

(2) Some boy admires every teacher. Every girl does too.
$(\exists \gg \forall, *\forall \gg \exists)$

(3) Some boy admires every teacher. Some girl does too.
$(\exists \gg \forall, \forall \gg \exists)$

Long binding blocked first, then becomes available:

(4)
a. John said that he likes his mother. Bill does too.
b. **Bill said that John likes Bill's mother.*

(5)
a. John said that Mike likes his mother. Bill does too.
b. *Bill said that Mike likes Bill's mother.*

cases: Superiority and Weak Crossover

Pesetsky (1987): Object over subject blocked first, then becomes available.

(6) a. Who invited who?
b. *Who did who invite?

(7) a. Which girl invited which boy?
b. Which boy did which girl invite?

Weak crossover (Postal 1993): Binding blocked first, then becomes available.

(8) *Which lawyer$_i$ did his$_i$ clients hate?

(9) Which lawyer$_i$ did only his$_i$ clients hate?

cases: Inclusive Plurals

Φ on pronominals (after Sauerland 2002, Percus 2005): Inclusive plural blocked first, then becomes available.

(10) *Everyone who has only a single son invited them.

(11) Everyone who has one or more sons invited them.

Examples with duality:

(12) Everyone who has two sons invited *all/both of them.

(13) Everyone who has two or more sons invited all/*both of them.

Plural address of singular individual (Sauerland 2002, Wang 2023):

(14) [addressing friend] *Wie geht es Ihnen? (How are they?)

(15) [addressing boss] Wie geht es Ihnen?

Accounting for effability

Y-model:

- requires look-ahead to meaning

Meaning first model:

- preference for economical conceptual representations
- closely related to exhaustification

Binding Economy

Longer dependencies are less economical:

(14) [[**the 'J**] [λ_x [**@** [x [**said** [**he**$_x$ [λ_y [y [**like** [**the** [**his**$_y$ **mother**]]]]]]]]]]]

(15) *[[**the 'J**] [λ_x [**@** [x [**said** [**he**$_x$ [**like** [**the** [**his**$_x$ **mother**]]]]]]]]]

Relevant alternatives of p for economy calculation are structures q with:

- q must have same meaning as p
- q must only contain the same atoms p contains
- q can have a different pronunciation for p (contra Fox 1998)

Only the most economical structure (i.e. lowest dependency complexity) is licit.

Scope Economy

Fox (1998): lowering of the raised subject for narrow scope

(16) a. [[every girl] λ_x [[every teacher] λ_y [x [likes y]]]
b. [[every teacher] λ_y [[every girl] [likes y]]]]

Sauerland (2018): representations different

(19) a. [[**every girl**] [λ_x [[**every teacher**] [λ_y [**@** [x [**admire** y]]]]]]]
b. *[[**every teacher**] [λ_y [[**every girl**] [λ_x [**@** [x [**admire** y]]]]]]]

Dependency length exponentially contributes to complexity.

(10) *Dependency Complexity (DC)* Let var($\mathbf{A}$) be the set of occurrences of bound[6] variables in A and len(x) be the number of complex concept units between a single occurrence $x \in$ var($\mathbf{A}$) and its binder λ_x within $\mathbf{A}$. Then we define the dependency complexity of $\mathbf{A}$ as:

$$\mathrm{DC}(\mathbf{A}) = \sum_{x \in \mathrm{var}(\mathbf{A})} 2^{\mathrm{len}(x)}$$

Account of superiority

(17) a. Which girl invited which boy?
     b. Which boy did which girl invite?

Singular *which* has uniqueness presupposition, who doesn't:

(18) a. Which girl invited the teacher? – Mary / #None of them / Mary and Sue.
     b. Who invited the teacher? – Mary / No one / Mary and Sue.

The uniqueness presuppositions project differently in (17a) and (17b):

(19) a. Each girl invited exactly one boy.
     b. Each boy invited exactly one girl.

(24)

a.	Abe	Ben	Cid
Ann		*	
Bea		*	
Cel	*		

b.	Abe	Ben	Cid
Ann			
Bea		*	*
Cel	*		

c.	Abe	Ben	Cid
Ann		*	
Bea		*	*
Cel			

Weak Crossover

(20) a. $^{*?}$Which lawyer did his clients hate?
b. Which lawyer's clients hate him?

(21) a. Which lawyer did only his clients hate?
Joe is the only lawyer x such that x's clients hate Joe
b. Only which lawyer's clients hate him?
Joe is the only lawyer's x such that x's clients hate x

Strong crossover doesn't improve:

(22) *Which lawyer does only he hate?

Predicted if only he must bind the lower position.

Inclusive plurals

Strong plural interpretation derives from **exh**:

(23) $\textbf{exh}_{\{\textsc{sg}(x)\}}\mathrm{PL}(\mathrm{x}) = \neg\mathrm{atom}(x)$

Pruning of SG allowed if singular and unpruned plural not possible:

(24) Everyone who has one or more sons invited them / *him.

Pruning of SG not allowed in Percus-style example:

(25) Everyone who has only a single son invited *them / him.

Additional economy measure: Pruning of an alternatives is uneconomical.
Also accounts for politeness plurals (and otherwise unmarked forms).

(26) [addressing boss] Wie geht es Ihnen / *[Dir]? (How are they/*you)?

Relation to exhaustification

Basic exhaust operator (Fox 2008):

(27) $\mathbf{exh}_C\ p = p \wedge \bigwedge\{\neg q \mid q \in \mathbf{Excl}(C, p)\}$

$\mathbf{Excl}(C, p)$ is the intersection of all maximal subsets C' of C such that $\{\neg q \mid q \in C'\}$ consistent with p.

Disjunction case:

(28) A $\vee$ B – possible elements of C: $A, B, A \wedge B, \neg A \wedge B, A \wedge \neg B, \ldots$

Katzir's (2006) condition: Elements of C must not be structurally more complex than p.

Innocent exclusion: A not excluded, B not excluded.

(29) $\mathbf{Excl}(p \vee q, p) = \{p \wedge q\}$

Structural complexity (from Katzir 2007)

(18) SUBSTITUTION SOURCE (first version, to be revised in 41):
Let ϕ be a parse tree. The *substitution source* for ϕ, written as $L(\phi)$, is the lexicon of the language.

(19) STRUCTURAL COMPLEXITY:
Let ϕ, ψ be parse trees. If we can transform ϕ into ψ by a finite series of deletions, contractions, and replacements of constituents in ϕ with constituents of the same category taken from $L(\phi)$, we will write $\psi \lesssim \phi$. If $\psi \lesssim \phi$ and $\phi \lesssim \psi$ we will write $\phi \sim \psi$. If $\psi \lesssim \phi$ but not $\phi \lesssim \psi$ we will write $\psi < \phi$.

(20) STRUCTURAL ALTERNATIVES:
Let ϕ be a parse tree. The set of *structural alternatives* for ϕ, written as $A_{str}(\phi)$, is defined as $A_{str}(\phi) := \{\phi' : \phi' \lesssim \phi\}$.

Blocking exclusion of simpler structures

Assume $\psi < \phi$ and $\psi \equiv \phi$: Blocking of too complex structures could be predicted:

(30) if $\psi \in \textbf{Excl}(\phi, C)$, then $\textbf{exh}(\phi) = \phi \wedge \neg\psi \wedge \cdots = \#$

Magri's (2009) constraint: If an alternative ψ is contextually equivalent to the assertion ϕ it cannot be pruned [restated].

(31) #Some Italians live in a beautiful country.

Our situation: ϕ asserted, ψ equivalent:

(32) Magri's constraint applies also to exclusion of alternatives of ϕ that are structurally distinct.